IPRL Offshoots

USDA-ARS Invasive Plant Research Laboratory
3205 College Ave., Fort Lauderdale, FL 33314

October 2004

Upcoming Events

24th International Symposium of the North American Lake Management Society
November 3-5, 2004
Victoria Conference Centre
Victoria, British Columbia
www.nalms.org/symposia/symposia.htm

ESA Annual Meeting
November 14-17, 2004
Salt Lake City, Utah
www.entsoc.org/annual_meeting

National Conference on Ecosystem Restoration
December 6-10, 2004
Wyndham Palace Hotel
Lake Buena Vista, Florida
http://conference.ifas.ufl.edu/ecosystem/

66th Annual Meeting of the Association of Southeastern Biologists (ASB)
April 13-15, 2005
Florence, Alabama
www.asb.appstate.edu

More upcoming events on page 9

This report focuses on Technology Transfer, a major component of the TAME Melaleuca area-wide project. Technology transfer is the process of providing to the public knowledge gained during the project. Much of the work up to this point has been in preparation for demonstrating the various ways of managing melaleuca infestations. It will soon be time to actually hold the demonstrations.

John Scoles - Editor

TAME Melaleuca Project Schedules First Two Demonstration Site Tours

The TAME Melaleuca Project will hold its first two demonstration site tours in February and March of 2005. The first tour will be at the Prairie Pines site in Lee County, February 15-16. This will be a two-day event with the first day devoted to professionals involved with melaleuca management. The second day will be devoted to showing the general public how they can manage melaleuca on their own property.

The second tour will be at the Holiday Park site in western Broward County on March 10-12. This three-day event for the most part mirrors the first event.

The primary function of TAME Melaleuca is to educate the public and resource managers about the most effective and environmentally friendly methods for controlling melaleuca trees. The best way to accomplish this goal is with demonstration sites. We have set up

nine sites around South Florida that range from small (less than10 acres) to large (greater than 100 acres). Small sites demonstrate information relevant to owners or managers of small parcels such as homeowners, while large sites apply to large parcels, such as natural areas, commercial developments, and corporate campuses. We will publish on our website information for all sites, as it becomes available, regarding the economics and effectiveness of each treatment on a per-stem or per-acre basis so that you can make informed choices about which management techniques are appropriate for your site-specific needs.

Workers at the Prairie Pines site using the Hack and Squirt treatment on melaleuca.

The type of treatment or combination of treatments that you pick depends on how much you are willing to spend and the results that you wish to obtain. The first decision that you need to make for how to control melaleuca is whether you want to kill the melaleuca trees or just suppress their growth and keep them from spreading. The only treatment option you have if you want to just suppress the trees is to use biological control.

Close-up shot of Hack and Squirt treatment on melaleuca.

If you decide to kill the trees, your next decision is whether to leave the trees standing or remove

SITE NAME	DEMONSTRATION AUDIENCE	VEGETATION	TREATMENTS
Lake Worth	Homeowner/small land owner	Dense fully-grown melaleuca, Australian pine, and Brazilian pepper	Leveling with chainsaw Stump treatments Biological control
Prairie Pines	Large property owner/public land manager	A range of large to sapling sized melaleuca trees intermingled with slash pine and saw palmetto. Seasonally flooded. Contains annual and perennial wetland vegetation.	Aerial herbicide application Hack and squirt herbicide application Grinding of standing trees Tree leveling and stacking Stump treatments Biological control
Corkscrew Swamp Sanctuary	Small property owner	Dense melaleuca saplings and small trees. Slash pine and saw palmetto. Partly seasonally flooded. Contains annual and perennial wetland vegetation.	Hack and squirt herbicide application Leveling with chainsaw Stump treatments Biological control
Clewiston	Large property owner/manager	Large mature melaleuca with dense canopy and open understory. Brazilian pepper and Australian pine. Flooded most of the year. Aquatic plants.	Aerial herbicide application Hack and squirt herbicide application Stump treatments Biological control
Holiday Park	Large property owner/manager	Dense fully-grown melaleuca, Australian pine, and Brazilian pepper and a mucky soil.	Aerial spraying Hack and squirt herbicide application Grinding of standing trees Tree leveling and stacking Leveling and grinding Stump treatments Biological control
Fort Myers	Cattle rancher/ agriculturalist	Grazing land invaded by melaleuca	Biological control Mechanical mowing
Belle Meade	Large property owner/manager	Medium and small melaleuca trees intermingled with pine and saw palmetto	Biological control Periodic fires
Lee County Well Field	Large property owner/manager	Dense melaleuca saplings re-growing from cut stumps. Slash pine, wax myrtle and saw palmetto.	Biological control Water treatments
Fort Lauderdale	All audiences	Small test plots with non-target plant demonstration plots	Biological control Mechanical control Non-target, native plants

them. Some areas, such as remote locations and easements, are well suited for leaving the trees standing. This strategy saves money but the standing trees can be an eyesore. The trees will eventually collapse and rot. Most homeowners would not be satisfied with having dead trees on their property. Their best option is to remove the trees completely.

The treatments used at the various demonstration sites were designed to represent each management option described above. Not every management option or treatment is present at every demonstration site. Should you desire to see a specific kind of treatment, check the table on page 3 to find out which demonstration sites contain that treatment type.

Each demonstration site consists of multiple treatment plots. Each plot contains a unique melaleuca treatment. We used the following basic types of treatments at each site:

- Mechanical
- Chemical
- Biological control

These terms refer to the primary method of treatment. For example, aerial spraying and hack and squirt are chemical treatments, tree leveling and grinding are mechanical.

Melaleuca trees being ground down using a Brontosaurus.

Photo by Steve Ausmus

Mechanical Treatment

Mechanical control can be performed with large machinery or by hand using machetes and chainsaws. Machines can cut, stack, or grind the trees. One machine, simply known as the "brontosaurus", uses a chipper on a long boom to grind standing trees all the way down to the ground, leaving huge piles of mulch in its wake. Another machine, called a feller-buncher, grabs trees, saws them off at the base and

applies herbicide to the remaining stump, then stacks the trees for later disposal. A third machine, a Barko chipper, pushes the trees over and grinds them up as it goes. The Barko chipper is often used to cut roads and fire lines when fighting wild fires. There are many large machines that can do the job. Each machine has its advantages and all of them work best on large expanses of trees. For small properties such as yards, mechanical treatment by hand is best. Portable chipping equipment works on all but the large logs from mature trees.

Aerial spraying at the Holiday Park demonstration site. Note the unspoiled sawgrass of the Everglades in the top half of the picture.

Photo by Steve Ausmus

Chemical Treatment

Chemical control consists of herbicide application of various types such as aerial spraying or broadcasting of granular products. Chemical treatments are often combined with mechanical treatments for more effective control. For example, hack and squirt is actually a combination of mechanical and chemical treatment where we girdle the trees and spray the exposed cambium layer with herbicide to kill the tree.

Biological Control Treatment

The biological control method uses the tree's natural enemies to keep the trees in check. Two biological control agents, both insects, are currently at work on melaleuca, and they are particularly fond of new leaves. Feeding damage from these two insects is reducing melaleuca reproduction and seedling establishment.

Integrated Pest Management

Integrated Pest Management, or IPM, means combining various control treatments in an intelligent manner that best suits both the needs of the environment and cost considersations. IPM is the most effective way to control melaleuca. For example, a mechanical treatment might be used to

cut down a tree and then biological control used to prevent regrowth of the remaining stump.

Melaleuca is a very hardy plant with tremendous regenerative potential. If trees are leveled and the stumps left untreated, the stumps quickly begin growing. We demonstrate several ways to treat stumps to prevent regrowth. One treatment uses off-the-shelf consumer products that homeowners may use. Another uses various herbicides that professional applicators or contractors would use. Some plots contain only biological controls. Other plots are untreated (except for insecticide to keep the biological control agents away) and serve as the experimental control plots.

Melaleuca trees stacked after cutting by a feller-buncher.

Stacking versus Not Stacking

In order to gauge the extent of regrowth, on some plots at certain sites, we stacked the trees after leveling while on other plots we left the trees where they fell. The purpose of this activity is to show that stacking the leveled trees limits the area where seeds will sprout, thus reducing the area that will require follow-up treatment.

Follow-up treatments

While we demonstrate some of the best methods to eliminate melaleuca trees, by no means are these methods complete. A troubling aspect of melaleuca's reproductive ecology is that the trees retain their seeds in capsules, and following death or severe stress, the capsules open, releasing their seeds in a few days or weeks. Consequently, if you do not remove the trees and their branches from a site following herbicide treatments or leveling and before the seed capsules open, thousands of seedlings will begin growing within several weeks. A range of methods exists for controlling

these seedlings and TAME Melaleuca demonstrates how mechanical and chemical as well as more biologically-based approaches can be tailored for your specific needs.

More information about the results of the treatments at the sites will appear in later reports. You can find out more about the sites, the tour schedules, and the results by visiting the TAME Melaleuca website at http://tame.ifas.ufl.edu.

Cressida Silvers, Anik Smith, and Paul Pratt study the layout of the Prairie Pines demonstration site.

Photo by Steve Ausmus

IPRL Welcomes Newest SCA Intern

Carrie Boudreau has joined the staff of the IPRL for a one-year stint. She graduated from St. Joseph's College in Maine with a Bachelor of Science degree in Environmental and Marine Science. She will work for Dr. Robert Pemberton on Lygodium and the release of the new biological control agent *Austromusotima camptonozale*.

Web Sites You May Want to Visit

To learn more about invasive plants and what various organizations are doing about them, visit the following sites on the internet.

Agricultural Research Service
www.ars.usda.gov/

Center for Exotic and Invasive Plants
plants.ifas.ufl.edu

Federal Noxious Weed Program
www.aphis.usda.gov/ppq/weeds

Florida Department of Agriculture, Department of Plant Industry
www.doacs.state.fl.us/~pi/index.html

Florida Department of Environmental Protection, Bureau of Invasive Plant Management
www.dep.state.fl.us/lands/invaspec/

Florida Exotic Pest Plant Council
www.fleppc.org

Invasive Plant Research Laboratory
www.weedbiocontrol.org/

The National Agricultural Library's Invasive Species website
www.invasivespecies.gov

National Noxious Weed Program
http://dogwood.itc.nrcs.usda.gov/weeds

South Florida Water Management District
www.sfwmd.gov

Southwest Florida Water Management District
www.swfwmd.state.fl.us/

TAME Melaleuca Project
http://tame.ifas.ufl.edu

The Nature Conservancy
http://nature.org/

Picture of the Month

Florida panther

Photo courtesy of the South Florida Water Management District

The Florida Panther National Wildlife Refuge will host the 9th Annual Exotic Species Workshop for Southwest Florida on December 1, 2004 in Naples, Florida. USDA-ARS IPRL researchers have participated and continue to participate in this regional, professional conference, presenting papers profiling exotic species research and the development of classical biological control organisms at the IPRL. For more information about the workshop, contact Dennis_Giardina@fws.gov.

Mission of the Florida Panther National Wildlife Refuge

To conserve and manage lands and waters in concert with other agency efforts within the Big Cypress Watershed, primarily for the Florida Panther, other endangered and threatened species, natural diversity, and cultural resources for the benefit of the American people.

You can visit their website at:

http://floridapanther.fws.gov/

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More upcoming events

Aquatic Weed Control Short Course 2005
May 16-20, 2005
Fort Lauderdale Marriott North
Ft. Lauderdale, Florida
http://conference.ifas.ufl.edu/aw/

The Society for Conservation Biology
Annual Meeting
July 15-19, 2005
Brasilia, Brazil
www.conbio.org/2005

90th Annual Meeting of the Ecological Society of America
August 7-12, 2005
Montreal, Quebec, Canada
www.esa.org

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Previous reports are available online at:
http://tame.ifas.ufl.edu/html/publications.htm

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